CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.13/WMM/Shape.T/2017-18 27.12.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Shooting Bungalow road Ravindra Nagara and other roads in Mallasandra Ward No.13, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/142/2017-18 Dated: 21.12.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	27.12.2017

Sl.No.	Description	Result
1	Flakiness Index	12.05%
2	Elongation Index	13.40%
3	Combined Flakiness & Elongation Index	25.45%

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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Building & Highway Material Testing Laboratory

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T-2377

Job No.: CTCE/BBMP/KRIDL/W.No.13/CSR-01/537/QB(BM)/2017-18 08.01.2018

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements to Roads and Asphalting at Shooting Bungalow road Ravindra Nagara and other roads in Mallasandra Ward No.13, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/142/2017-18 Dated: 21.12.2017
* Sample ID	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	05.01.2018
Period of Testing	:	08.01.2018

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2014)	68	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2014)	44	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2014)	100 >	Min.50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2014)	305	Min. 220

* Information is furnished by the Customer/Representative

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Technical Manager

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/AIV/2017-18 08.01.2018

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Shooting Bungalow road Ravindra Nagara and other roads in Mallasandra Ward No.13, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/142/2017-18 Dated: 21.12.2017
* Sample ID	:	Hot Mix Plant, Bangalore
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	08.01.2018

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	299	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	21.64	22.94	22.29

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Shape.T/2017-18 08.01.2018

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Shooting Bungalow road Ravindra Nagara and other roads in Mallasandra Ward No.13, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/142/2017-18 Dated: 21.12.2017
* Sample ID	:	Hot Mix Plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	08.01.2018

Sl.No.	Description	Result
1	Flakiness Index	11.85%
2	Elongation Index	13.20%
3	Combined Flakiness & Elongation Index	25.05%

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Stripping/2017-18 10.01.2018

TEST REPORT ON STRIPPING VALUE OF ROAD AGGREGATE (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements to Roads and Asphalting at Shooting Bungalow road Ravindra Nagara and other roads in Mallasandra Ward No.13, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/142/2017-18 Dated: 21.12.2017
Technical reference	:	IS: 6241
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	10.01.2018

Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2	3.30	96.70
2	3.3		
3	3.4		

*Information is furnished by the Customer/Representative.

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Comments:
→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

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